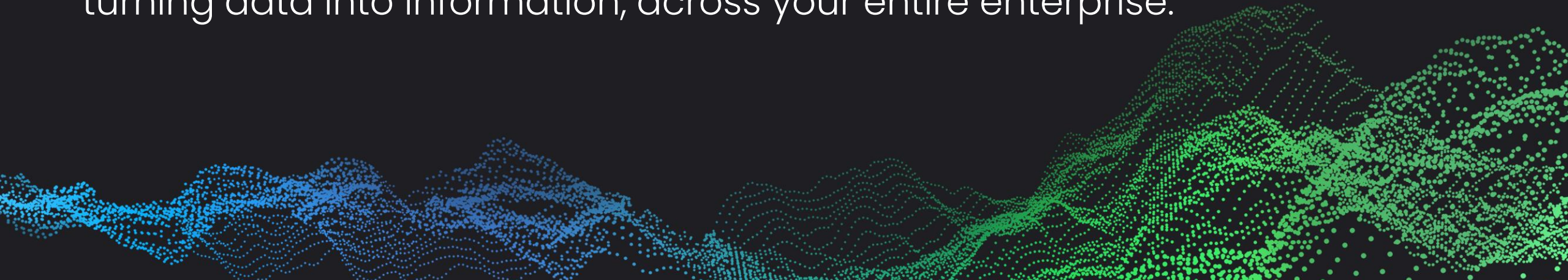


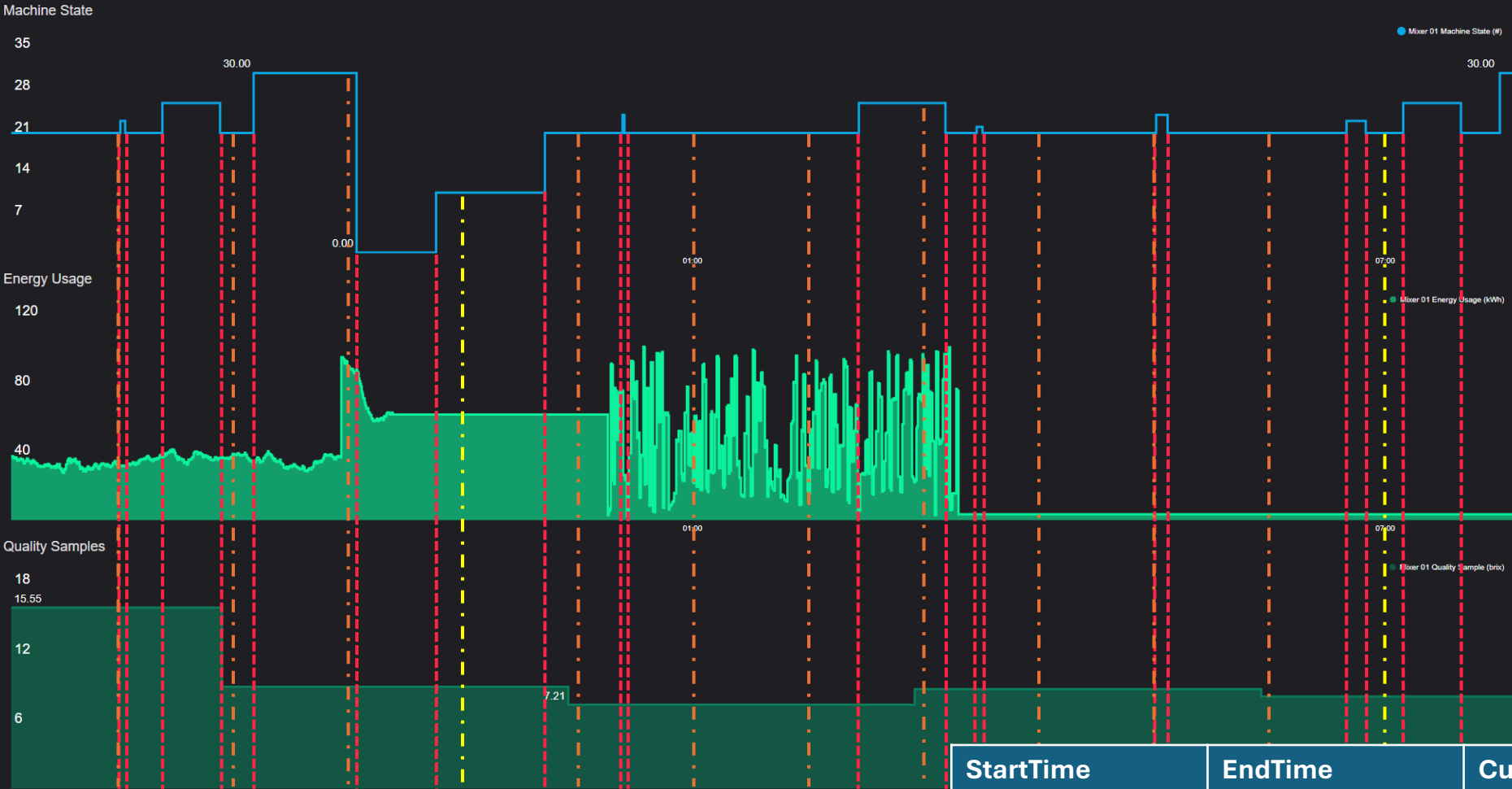
FLOW SOFTWARE

Model, transform, and distribute information.

Govern how you manage and execute the process of
turning data into information, across your entire enterprise.



Raw Data: Machine State, Energy Use and Quality Samples

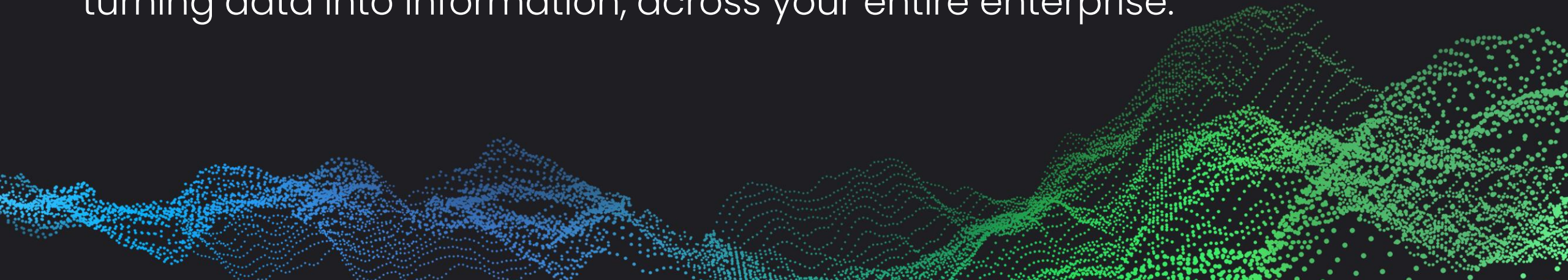


StartTime	EndTime	Customer	SKU
09-10-24 05:58	09-10-24 22:40	Folsom Prison	134-665-SKU-33
09-10-24 22:46	09-11-24 01:55	San Quentin	234-365-SKU-33
09-11-24 01:55	09-11-21 09:17	San Quentin	436-965-SKU-22
09-11-24 09:17	09-11-24 16:40	Rikers Island	328-625-SKU-33
09-11-24 16:40		Attica	178-645-SKU-56

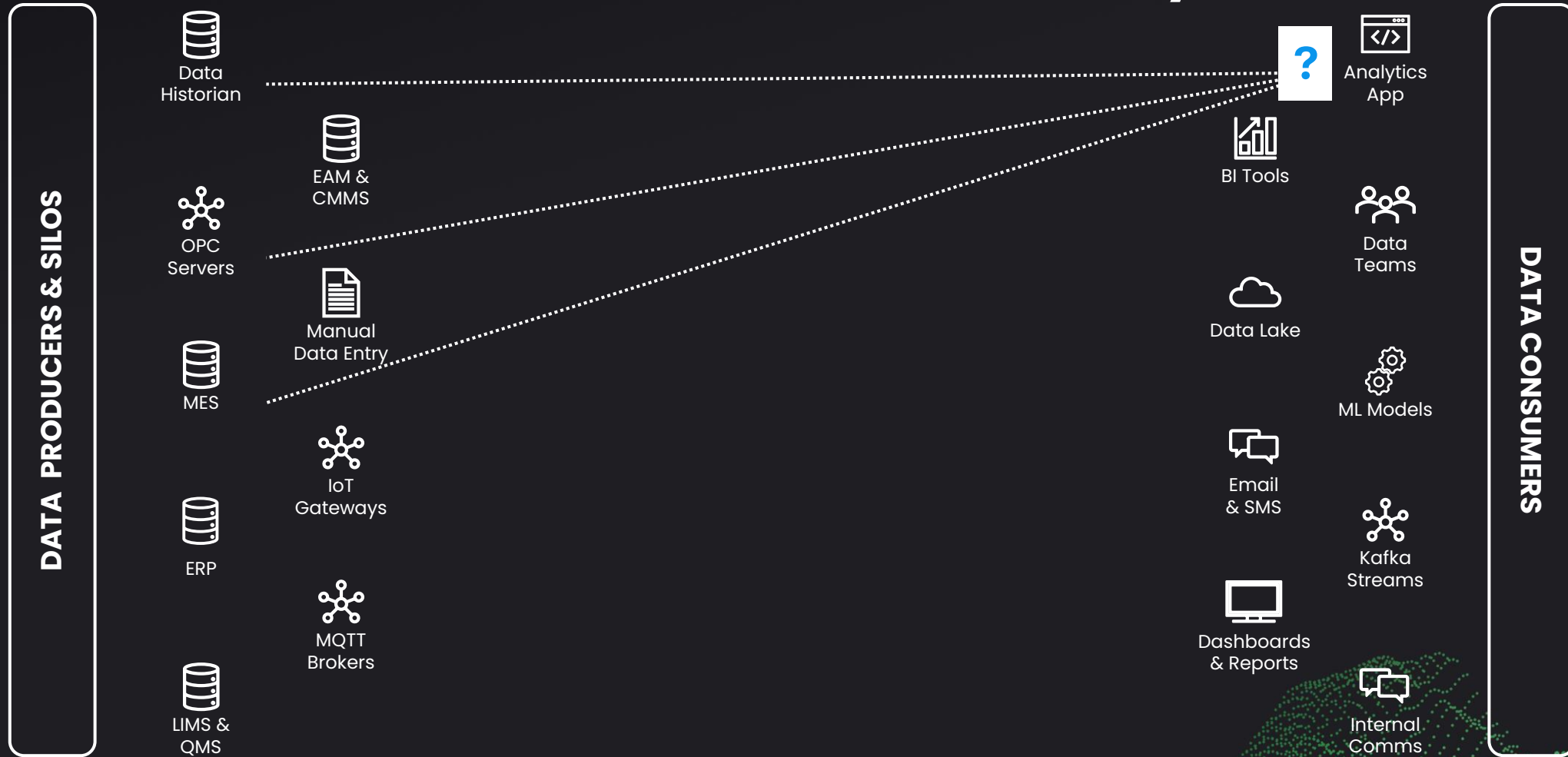
FLOW SOFTWARE

Model, transform, and distribute information.

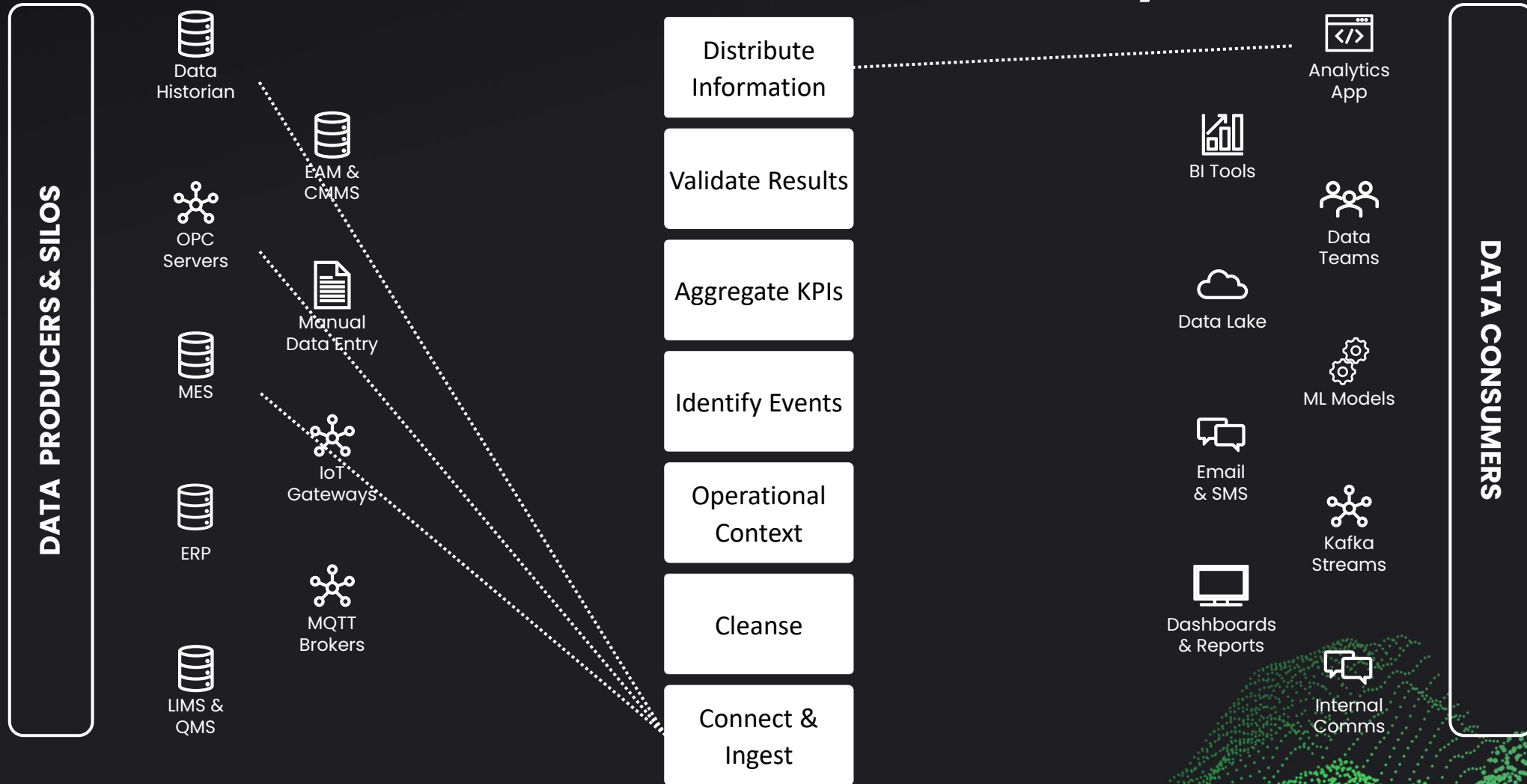
Govern how you manage and execute the process of
turning data into information, across your entire enterprise.



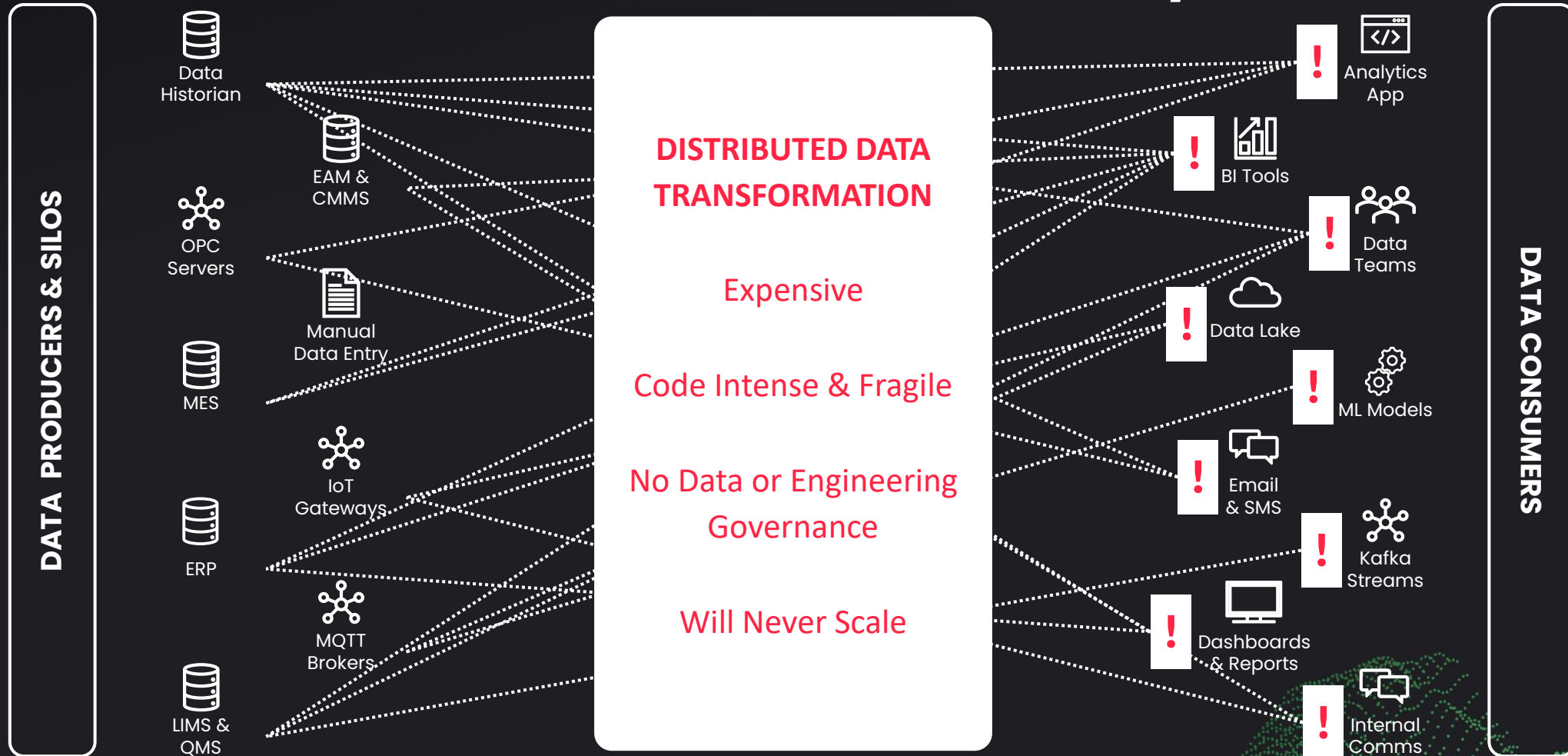
Current State of Industry



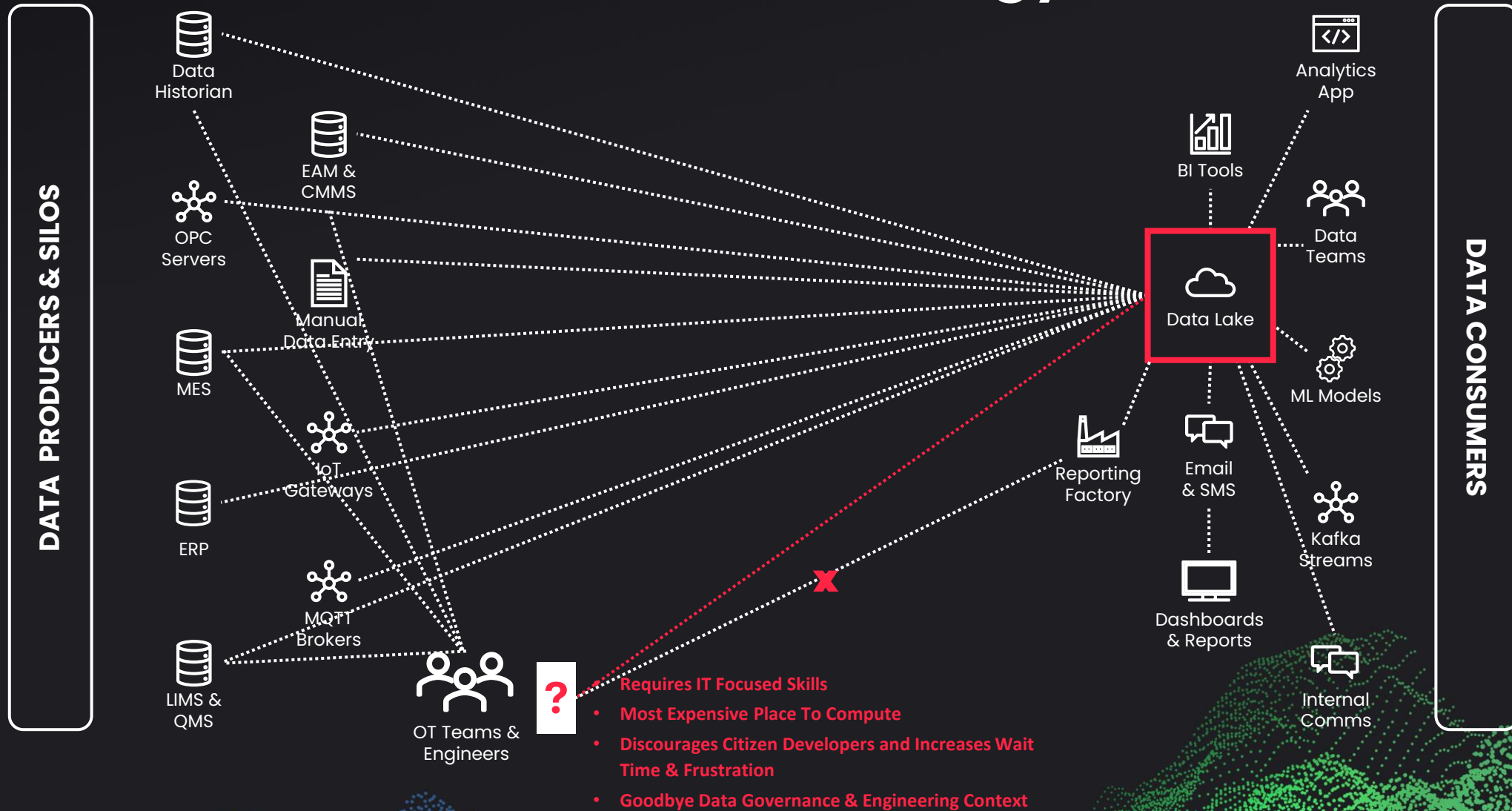
Current State of Industry



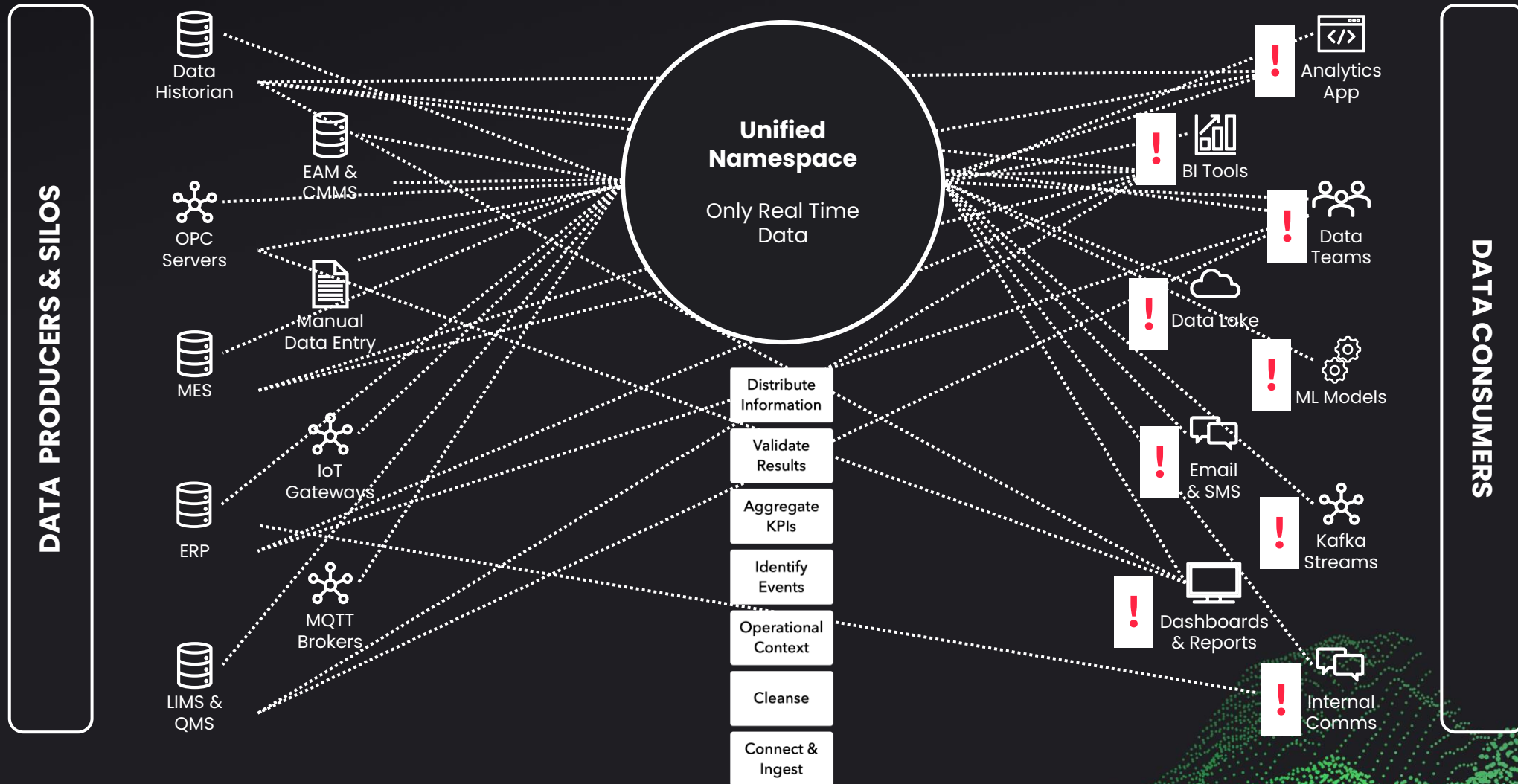
Current State of Industry



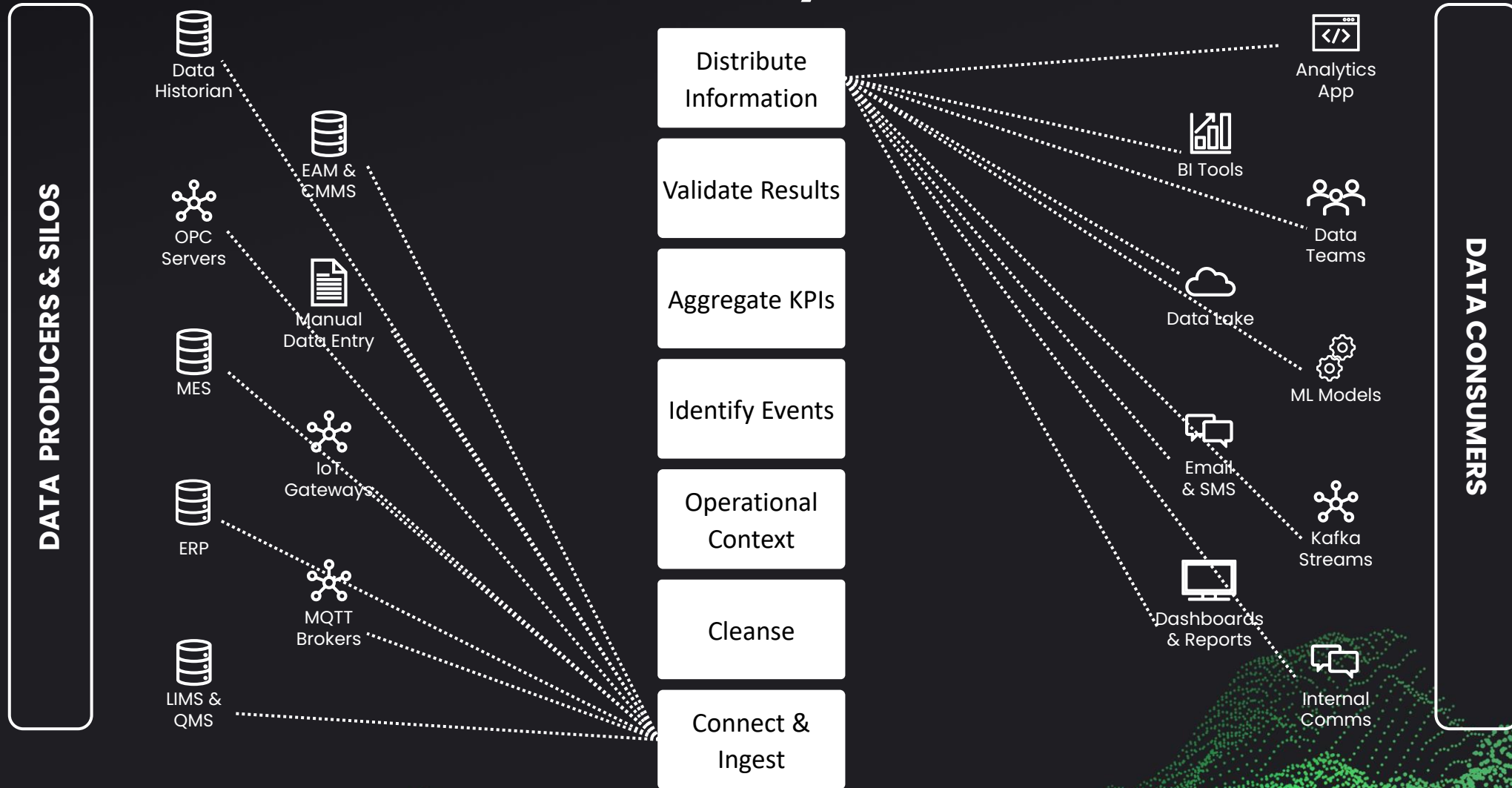
Data Lake Strategy



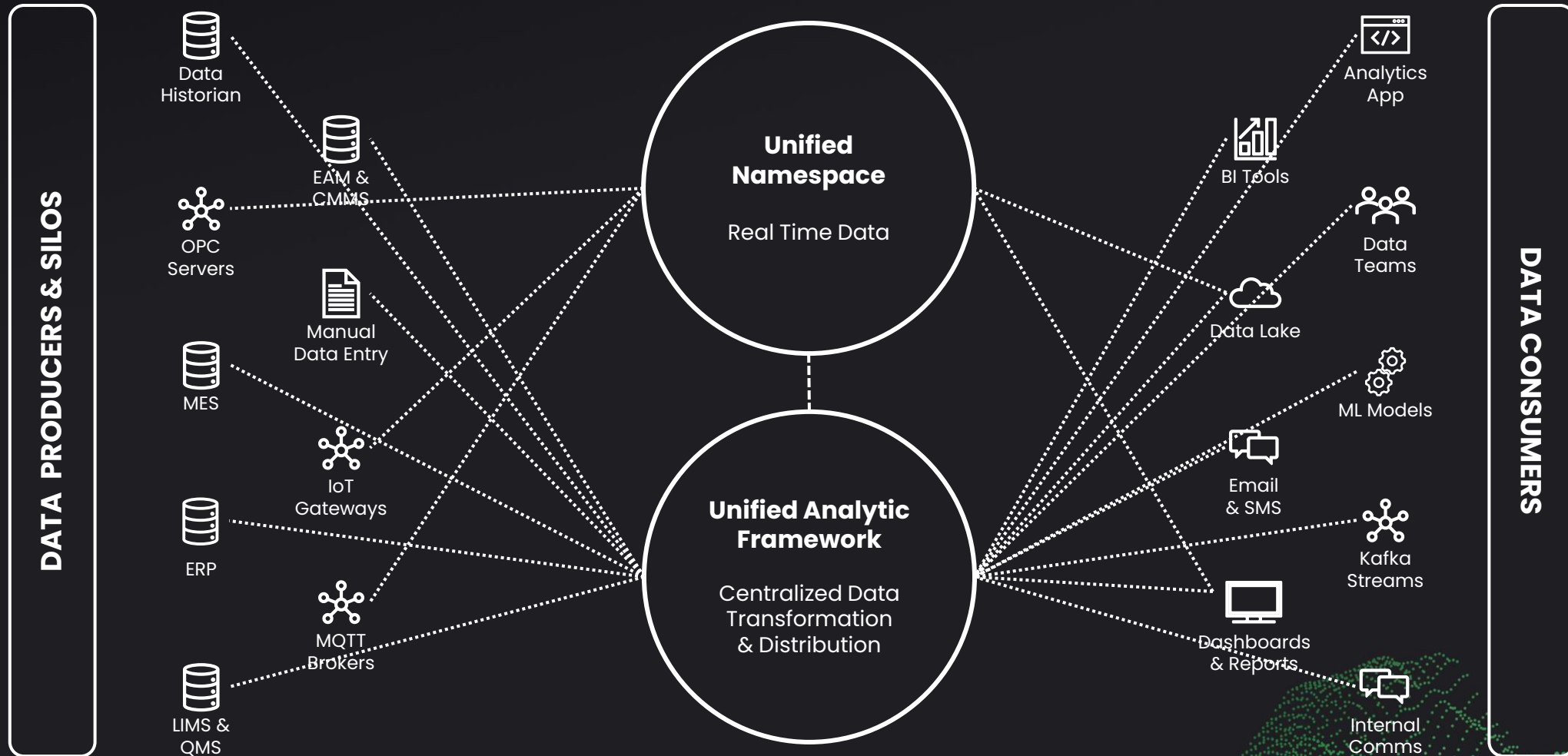
What About a UNS?



A Better Way Forward



How Do We Solve the Issue?



CENTRALIZED DATA TRANSFORMATION

SME / Engineering Tool - Added Data Context - Centralize Data Transformation - Information Hub - Scalable Governance

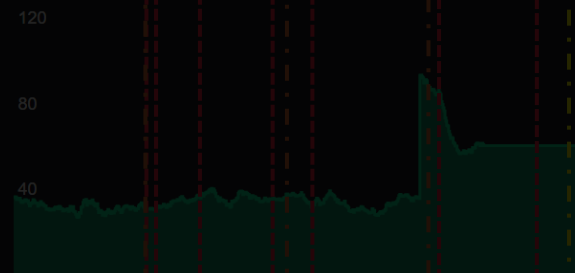


Raw Data: Machine State, Energy Use and Quality Samples

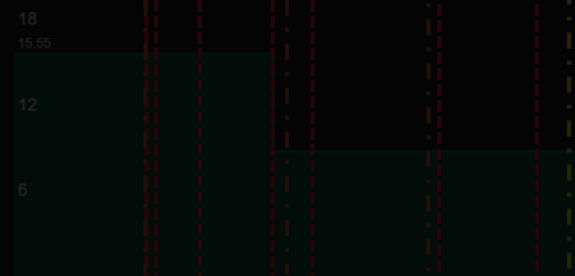
Machine State



Energy Usage



Quality Samples



Timestamp	State	Total	Quality Check	BatchID
2:00:57.2	0	2950	0.510	65001A
2:20:57.8	10	2950	0.510	65001A
2:51:01.8	20	4040	0.680	65001A
3:01:02.2	22	5430	0.680	65001A
3:13:03.5	20	5430	0.777	65001A
4:01:05.0	30	7803	0.777	65001A
4:37:08.3	0	7803	0.777	99988Z



Flow Database	StartTime	EndTime
	09-10-24 05:58	09-10-24 22:40
	09-10-24 22:46	09-11-24 01:55
	09-11-24 01:55	09-11-21 09:17
	09-11-24 09:17	09-11-24 16:40
	09-11-24 16:40	

Customer	SKU
Folsom Prison	134-665-SKU-33
San Quentin	234-365-SKU-33
San Quentin	436-965-SKU-22
Rikers Island	328-625-SKU-33
Attica	178-645-SKU-56

Raw Data: Machine

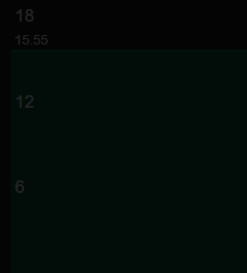
Machine State



Energy Usage



Quality Samples



Contextualized Information: Batch Data (time series + relational)

Mixer 01 Batch Runs								
BatchID	Batch Start	Batch End	Duration			Customer	SKU	QC Check
Lot 1	09-10-24 05:58	09-10-24 22:40	16:42:15			Folsom Prison	134-665-SKU-33	13.79
Lot 3	09-10-24 22:46	09-11-24 01:55	03:08:35			San Quentin	234-365-SKU-33	12.54
Lot 3	09-11-24 01:55	09-11-24 09:17	07:22:39			San Quentin	436-965-SKU-22	18.74
Lot 5	09-11-24 09:17	09-11-24 16:40	07:22:39			Rikers Island	328-625-SKU-33	15.54
Lot 6	09-11-24 16:40		15:10:34			Attica	178-645-SKU-56	13.69

Lot 1 State Breakdown

Mixer 01 State											
Batch ID	Batch Start	Batch End	Duration		Shift	State	Discipline	Reason	Classification		Energy Useage (kWh)
Lot 1	09-10-24 05:58	09-10-24 07:48	01:49:33		Night	Running					14.34
Lot 1	09-10-24 07:48	09-10-24 07:52	00:04:00		Morning	Downtime	Instrumentation	Drive Fault	Unscheduled Electrical		0.21
Lot 1	09-10-24 07:52	09-10-24 09:17	01:25:07		Morning	Running					9.20
Lot 1	09-10-24 09:17	09-10-24 09:20	00:03:37		Morning	Downtime	Production	No Products	Scheduled Production		0.21
Lot 1	09-10-24 09:20	09-10-24 09:40	00:19:45		Morning	Running					2.60
Lot 1	09-10-24 09:40	09-10-24 10:10	00:30:00		Morning	Downtime	Instrumentation	Vibration	Unscheduled Electrical		1.54
Lot 1	09-10-24 10:10	09-10-24 10:32	00:22:13		Morning	Running					2.91
Lot 1	09-10-24 10:32	09-10-24 11:32	01:00:09		Morning	CIP					3.56
Lot 1	09-10-24 11:32	09-10-24 12:01	00:28:33		Morning	Stopped	Production	Lunch	Scheduled Production		0.10
Lot 1	09-10-24 12:01	09-10-24 13:41	01:40:15		Morning	Idle					5.57
Lot 1	09-10-24 13:41	09-10-24 14:55	01:13:18		Morning	Running					7.54
Lot 1	09-10-24 14:55	09-10-24 15:04	00:09:38		Afternoon	Downtime	Operations	Jammed	Unscheduled Operations		0.36
Lot 1	09-10-24 15:04	09-10-24 16:53	01:49:01		Afternoon	Running					12.67
Lot 1	09-10-24 16:53	09-10-24 17:38	00:45:00		Afternoon	Downtime	Production	Meetings	Scheduled Production		2.92
Lot 1	09-10-24 17:38	09-10-24 17:58	00:19:23		Afternoon	Running					1.98
Lot 1	09-10-24 17:58	09-10-24 18:03	00:05:52		Afternoon	Downtime	Instrumentation	Drive Fault	Unscheduled Electrical		0.36
Lot 1	09-10-24 18:03	09-10-24 19:23	01:19:52		Afternoon	Running					7.89
Lot 1	09-10-24 19:23	09-10-24 19:25	00:01:57		Afternoon	Downtime	Production	No Workforce	Scheduled Production		0.12
Lot 1	09-10-24 19:25	09-10-24 21:03	01:37:53		Afternoon	Running					9.73

SKU

134-665-SKU-33

234-365-SKU-33

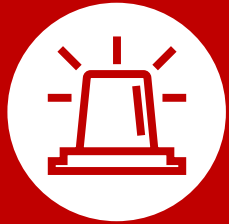
436-965-SKU-22

328-625-SKU-33

178-645-SKU-56

What Is Required To Turn Data Into Information?

Collect and Store Data



Relies Heavily on Scripting and Custom Code

Spread Across Multiple Applications

- BI Tools
- Reporting Tools
- Excel
- SCADA Systems
- Data Warehouses

No Governance on Structure, Process, or Engineering

Costly – Time and Talent

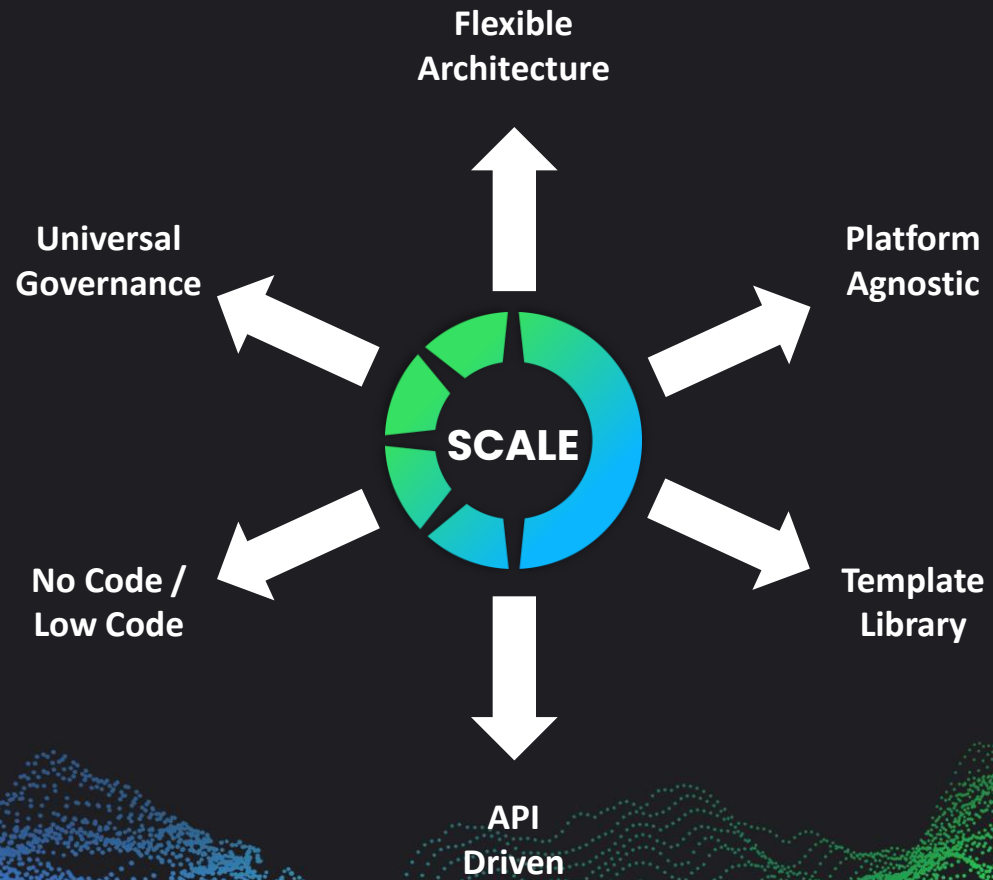
Execute Appropriate Action

Information Management

TEMPLATIZED
INFORMATION
MODEL

INTELLIGENT
EXECUTION
ENGINES

UNIVERSAL
INFORMATION
ACCESS



Deploy This Strategy on the Next Data Project

**OEE & Related
Calcs**

Production Forecasting

Compliance Reporting

Workforce Safety & Efficiency

Quality Assurance

**Asset Management &
Maintenance**

Cost Monitoring

Batch & Recipe Reporting

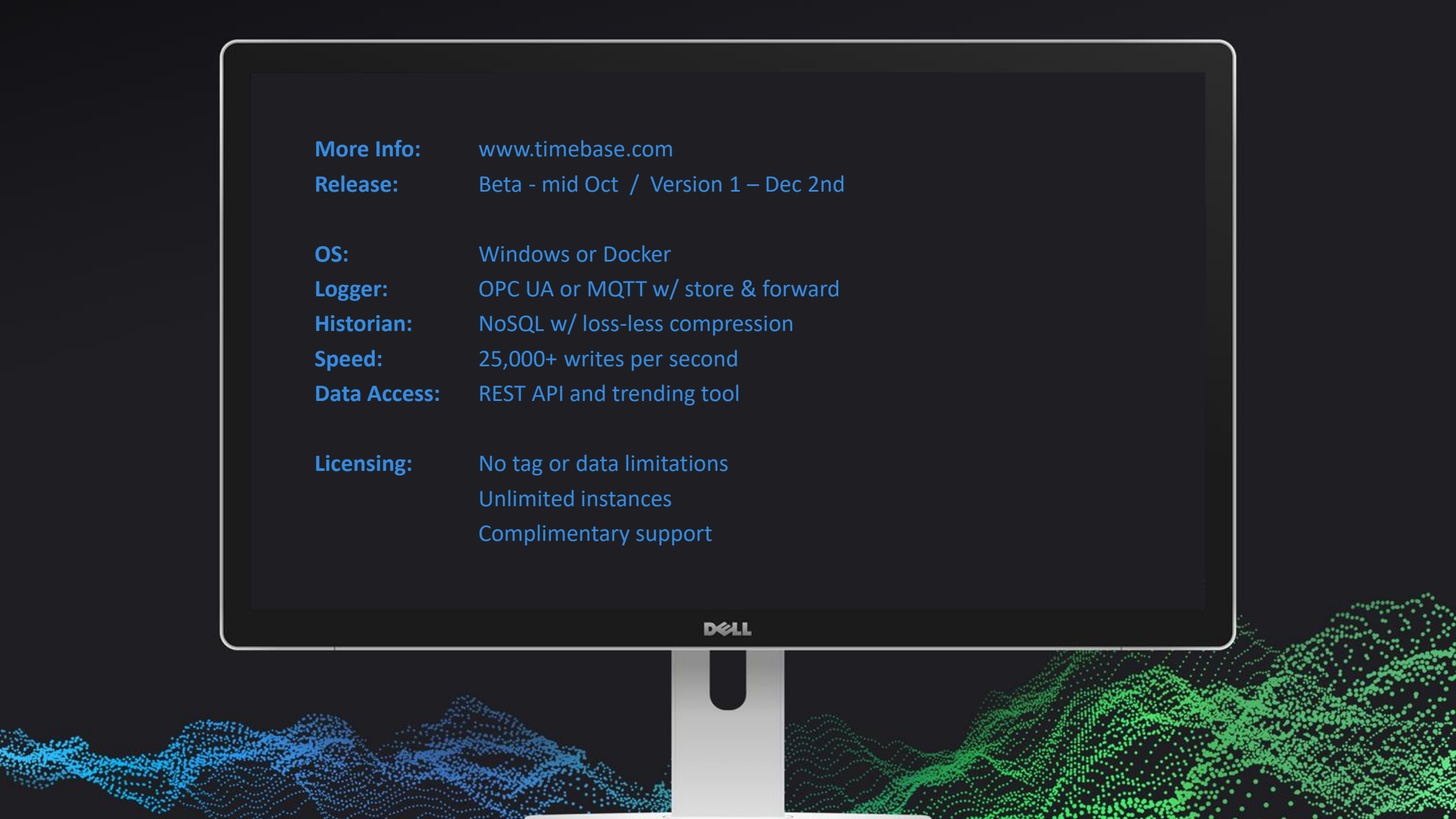
**Downtime Tracking &
Categorization**

Inventory Management

Scrap Prevention

Utility Consumption





More Info: www.timebase.com
Release: Beta - mid Oct / Version 1 – Dec 2nd

OS: Windows or Docker
Logger: OPC UA or MQTT w/ store & forward
Historian: NoSQL w/ loss-less compression
Speed: 25,000+ writes per second
Data Access: REST API and trending tool

Licensing: No tag or data limitations
Unlimited instances
Complimentary support



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Get Early Timebase Access

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